

Appln No. 10/821,266
Amdt date June 14, 2007
Reply to Office action of March 14, 2007

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A carbon-based composite particle for an electron emission source, comprising:

a particle comprising a material selected from the group consisting of metals, oxides, ceramic materials, and combinations thereof; and

a carbon-based material which is partially embedded within the particle and which partially protrudes from the surface of the particle, ~~wherein the electron emission source has a surface roughness of at least 10Å.~~

2. (original) The carbon-based composite particle for an electron emission source according to claim 1, wherein the particle is selected from the group consisting of Ag, Al, Ni, Cu, Zn, SiO₂, MgO, TiO₂, and Al₂O₃.

3. (original) The carbon-based composite particle for an electron emission source according to claim 1, wherein the carbon-based material is selected from the group consisting of carbon nanotubes, diamond, diamond-like carbon, graphite, and carbon black.

4. (original) The carbon-based composite particle for an electron emission source according to claim 1, wherein the carbon-based material occupies at least 30% of the entire surface area of the composite particle

5. (original) An electron emission source comprising a plurality of carbon-based composite particles according to claim 1.

6. (canceled)

7. (currently amended) The electron emission source according to claim ~~[[6]]~~ 42, wherein the electron emission source has a surface roughness of between 10\AA and $10\mu\text{m}$.

8. (currently amended) An electron emission source of a field emission display device comprising an aggregate of carbon-based composite particles, each comprising:

a particle comprising a material selected from the group consisting of metals, oxides, ceramic materials and combinations thereof; and

a carbon-based material which is partially embedded within the particle and which partially protrudes from the surface of the particle, ~~wherein the electron emission source has a surface roughness of at least 10\AA .~~

9. (original) The electron emission source according to claim 8, wherein the particle is selected from the group consisting of Ag, Al, Ni, Cu, Zn, SiO_2 , MgO, TiO_2 , and Al_2O_3 .

10. (original) The electron emission source according to claim 8, wherein the carbon-based material is selected from the group consisting of carbon nanotubes, diamond, diamond-like carbon, graphite, and carbon black.

11. (original) The electron emission source according to claim 8, wherein the carbon-based material occupies at least 30% of the entire surface area of the composite particle.

12. (canceled)

13. (original) The electron emission source according to claim 8, wherein the electron emission source has a surface roughness of between 10\AA and $10\mu\text{m}$.

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14. (original) A composite particle for an electron emission source, comprising:
a particle comprising a material selected from the group consisting of metals, oxides, ceramic materials, and combinations thereof; and
a material of a cylindrical shape which is partially embedded within the particle and which partially protrudes from the surface of the particle.

15. (original) The composite particle for an electron emission source according to claim 14, wherein the particle is selected from the group consisting of Ag, Al, Ni, Cu, Zn, SiO₂, MgO, TiO₂, and Al₂O₃.

16. (original) The composite particle for an electron emission source according to claim 14, wherein the material of a cylindrical shape is one or more nanotubes.

17. (original) The composite particle for an electron emission source according to claim 14, wherein the material of a cylindrical shape occupies at least 30% of the entire surface area of the composite particle.

18. (original) An electron emission source comprising a plurality of the composite particles according to claim 1.

19. (canceled)

20. (currently amended) The electron emission source according to claim ~~[[19]]~~ 44, wherein the electron emission source has a surface roughness of between 10Å and 10µm.

21.-35. (canceled)

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36. (original) A composition for forming an electron emission emitter comprising a plurality of carbon-based composite particles according to claim 1.

37. (canceled)

38. (original) A field emission display device comprising an electron emission source prepared by print-coating the composition for forming an electron emission emitter according to claim 36.

39.-41. (canceled)

42. (reinstated-formerly claim 6) The electron emission source according to claim 5, wherein the electron emission source has a surface roughness of at least 10Å.

43. (reinstated-formerly claim 12) The electron emission source according to claim 8, wherein the electron emission source has a surface roughness of at least 10Å.

44. (reinstated-formerly claim 19) The electron emission source according to claim 18, wherein the electron emission source has a surface roughness of at least 10Å.